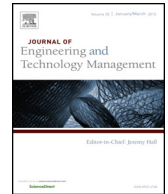


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Editorial

Leveraging users as innovators: Managing the creative potential of individual consumers



Traditionally, firms have produced goods and services, and customers have consumed or used them. For firms, success came through understanding the needs of their customers well, and then producing and delivering offerings that would satisfy these needs. Or, it came through developing products that customers didn't know they needed, but which then became a quintessential part of customers' lives, shaping them in unanticipated ways. The role of customers was essentially passive: they consumed and used offerings for the purposes for which they were intended and seldom altered or modified them in any way. Automobiles were used for traveling from one place to another and baking soda was used for baking cakes, just as the manufacturers of these products had intended. Firms invented and produced, and modified when necessary; consumers only used and consumed.

In the recent past however, scholars have observed customers not only using and consuming, but also repurposing, adapting, modifying, hacking and in other ways changing the proprietary offerings of firms. This phenomenon is known as user innovation ([von Hippel, 1988, 2005](#); [von Hippel et al., 2012](#)) and includes intermediate users (e.g., user firms) and final consumer users (e.g., individual people and groups of people) ([Bogers et al., 2010](#)).

This special issue focuses on consumer users. Classic examples of user innovation by consumers, includes innovations in skateboarding, windsurfing, and snowboarding products, in which the proprietary offerings of firms are modified and improved upon by consumers, who then freely share these innovations with other consumers ([Shah, 2000](#); [von Hippel, 2001](#)). [Morrison et al. \(2000\)](#) outline the factors that determine these user innovations and how these creations are shared in local markets, and [von Hippel \(2001\)](#) has explored user creativity in one of the first arenas to embrace user driven innovation: open source software. [Berthon et al. \(2007\)](#) focus on 'creative consumers', those who start with an existing product and change it, as opposed to innovating completely new products 'from scratch'. They describe a wide range of actions by creative consumers in a diverse set of products (e.g., automobiles, toys and computers) and services (e.g., user-designed and coordinated tours of theme parks and repurposing of delivery service packaging).

A number of inter-related developments and forces have accelerated the phenomenon of consumers as user innovators. First, many of the offerings used by consumers today are far more modular, rather than intact, in nature. These modular products embody high levels of reconfigurability and tend to be inexpensive, and this enables enthusiasts to tinker with technologies. For example, a consumer can buy a desktop computer from one supplier, a keyboard and mouse from another, and a monitor from yet another and combine them to satisfy the need for a desktop solution. The same consumer can then order and install additional inexpensive chips to make the computer more powerful, and additional storage media to enhance its memory. When offerings are modular, the potential is there for them to be combined and redeployed in innovative and initially unintended ways.

Second, in order for user-generated innovation to become widespread, a broadcast medium is needed. While Model T Ford owners might well have modified their vehicles to perform other tasks not intended by the manufacturer (such as driving threshing machines), these modifications were not widely adopted because the creative consumers had no means of broadly distributing their ideas. Firms were incentivized to use broadcast advertising media and a sales force, but the individual had no access to these channels. In the mid-1990s, with the advent of web-browsers, individuals realized that they also had access to a broadcast media channel: The Internet. Just like firms, they could share their modifications, innovations and hacks with the world, in online forums and on bulletin boards and websites. Nowadays of course, social media such as Facebook and Twitter have put the ability to share ideas and innovations into overdrive ([Kietzmann et al., 2011](#)).

Third, whereas information tended to be a support for the classical (usually physically based) notion of a product or service, it has become a wealth-generating asset in its own right, as presciently predicted by [Glazer \(1991\)](#). Computers have

become ubiquitous and are at the heart of many physical products. The fact that a vast range of products today contain computer chips (cars, washing machines, telephones, kitchen appliances, etc.) has three key implications. First, the firm with the best computers (and therefore information) in its products wins. Second, computers are programmable, not only by the companies who produce the products, but also by the consumers who purchase and own them. This, combined with modularity, has meant that consumers can modify proprietary offerings by reprogramming them, and in doing so repurposing them, improving them and changing them in a manner never intended by their original producers. Third, firms must manage the ‘consumer generated intellectual property’ (CGIP) and the ‘emotional property’ that comes with user innovation (Berthon et al., 2015). Emotional property is the “emotional investment in an act of creation, and the attachment to the creation itself, such that the creator feels ownership of the creation” (Berthon et al., 2015). Firms need to recognize that emotional property can be the primary driver of consumer innovation.

Consumers are no longer passive users or ‘ingesters’ of offerings; they have in many ways become part of both the innovation and production processes of firms (Gales and Mansour-Cole, 1995; Lettl, 2007). This is in line with the notion of open innovation proposed by Chesbrough (2003), which holds that innovation is a distributed process that involves a purposeful management of knowledge flows across organizational boundaries (Chesbrough and Bogers, 2014). It is also in line with the notion of service-dominant logic, proposed by Vargo and Lusch (2004), which holds that instead of firms producing for, and marketing to consumers, instead they co-create and market with consumers. Thus, rather than a firm marketing goods to its marketplace, it now exchanges services with that customer base to the benefit of both parties. Of course, this raises substantial challenges for managers, as the customer innovation phenomenon is a double-edged sword.

On the one hand, consumers who innovate represent a tremendous opportunity for firms (Berthon et al., 2007; West and Bogers, 2014). They are a low cost (usually free) source of innovative ideas and creativity, with a different mindset to the firm’s managers. The majority of such consumers seem to be motivated by factors other than money, such as enjoyment, challenge and social capital (Pitt et al., 2006). Some research (Poetz and Schreier, 2012) has shown that the quality of their ideas frequently exceeds the quality of innovations developed within the firm itself. It is also likely that user innovators represent a firm’s “best” customers – those who love the brand and the offering more than others, and those most likely to engage with other customers in their enthusiasm for the firm and its offerings.

On the other hand, consumers who innovate can represent an enormous challenge to the firm and threaten its very existence in many ways (Baldwin and von Hippel, 2011). Many creative consumers have a cavalier attitude toward intellectual property, treating a firm’s copyright, patents and trademarks with disdain as they engage in their creative undertakings. These activities can strike at the heart of a firm’s most critical strategic assets. The tinkering of creative consumers can also, in some cases, be clearly dangerous to them and to others, and ultimately, for different reasons, to the firm itself. Modifying over-the-counter medications to produce dangerous and addictive drugs, and souping-up vehicles to exceed speed limits and safety restrictions are just some of the ways in which creative consumers can endanger themselves and others. There is every possibility that these actions could also result in expensive legal claims against the firm whose intellectual property was expropriated in the first place.

Considering historical and contemporary developments, the consumer as a user innovator is here, and here to stay. We believe that the phenomenon will only grow in prevalence, stature and importance in the future. While management scholars have begun to give attention to such consumers in the literature, there is still much to explore and understand. The purpose of this special issue of *Journal of Engineering Technology Management* is to provide a forum for that exploration. In this special issue, we present eight papers that deal with different types of consumers innovating in different contexts. The article by Senghore, Campos-Nanez, Fomin and Wasek focuses on the user innovation networks of NASA’s International Space Apps Challenges. They use social network analysis to examine some of the determinants of innovation for different groups in the network. The article by Leminen, Nyström and Westerlund examines users who create value in living labs – a user-centred open-innovation ecosystem, such as a city neighborhood of consumers. Specifically they focus on how the reactive or proactive action of the users results in different types of innovation outcomes. The article by Jahanmir and Lages introduces an important but neglected type of user innovator – the laggard. A laggard is a user who is slow to adopt a product. The authors explain the innovation value that this type of user offers and present an approach for firms to identify and learn from laggards. The article by Parmentier looks at how firms can learn and innovate with a particular type of community of user innovators – a brand community. The research examines three different brand communities to provide insights on how idea generation processes, socialization processes and innovation adoption processes drive user innovation. Rayna, Striukova and Darlington focus on a specific group of technology users – those who use 3D printing technology. Using case studies of 22 online 3D printing platforms, they present a service-based taxonomy of how these platforms shape user innovation activity. The paper by Landau and Mack examines the creativity of car users. They design and run a contest for users to submit innovations to Porsche, the car maker, so as to determine which characteristics of the users make them participate and do well in the contest. The research in this special issue by Brem and Bilgram examines how firms can search for user innovators using the techniques of netnography and crowdsourcing. They apply these techniques to 24 user innovation projects and offer interesting insights on the utility of the techniques and how they foster user centric search strategies. Finally, the paper by Pongtanalert and Ogawa conducted a survey of user innovators in Japan so as to identify differences in demographics, innovation adoption and motives. From this survey, the authors present a taxonomy of four types of user innovator: social innovators, revealing innovators, and silent innovators, and offer explanations and predictions for each type.

We started this introduction to the special issue by highlighting the importance to firms of users as innovators. We explained why they exist, what they do and why firms are increasingly seeking to leverage the creative potential of these individuals. This account provides the motivation for this special issue and supports the contributions of the published papers that provide insights on the characteristics and value of different types of user innovator and how those differences require firms to use different approaches to leverage knowledge from each type. Such research is vital as firms across industries and geographical settings struggle with the challenges of learning from user innovators.

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Marcel Bogers
University of Copenhagen, Denmark

Ian P. McCarthy*
Leyland Pitt
Simon Fraser University, Canada

*Corresponding author
E-mail address: imccarth@sfu.ca (I.P. McCarthy).

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